

REMARKS

The Examiner is thanked for the thorough examination and search of the subject.

5 Claims 281-370 are pending; Claims 281-287, 291-295, 299-309, 313, 317-320, 324, 325, 329-331, 335, 339, 340, 344-347, 351, 352, 356-359, 363, 364 and 368-370 have been currently amended; Claims 1-280 have been canceled.

Response to Claim Rejections under 35 U.S.C. 102 and 103

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Applicants respectfully traverse the rejections for at least the reasons set forth below.

Response to Claims 281 and 287-300

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As currently amended, independent Claim 281 is recited below:

281. A method for fabricating a chip package, comprising:

joining a die and a substrate using an adhesive material;

20 after said joining said die and said substrate, forming a circuit layer over said die and across an edge of said die;

forming a gold bump over said circuit layer; and

after said forming said gold bump over said circuit layer, cutting said substrate.

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Reconsideration of Claims 281, 287, 288, 291 and 294-296 rejected under 35 U.S.C. 102(b) as being anticipated by Eichelberger (US Pat. 6,159,767), of Claim 300 rejected under 35 U.S.C. 103(a) as being unpatentable over Eichelberger in view of

Marcinkiewicz (US Pat. 6,025,995), of Claims 289, 290, 292, 293, 297 and 298 rejected under 35 U.S.C. 103(a) as being unpatentable over Eichelberger in view of Marcinkiewicz and further in view of Wojnarowski et al. (US Pat. 5,576,517) and of Claim 299 rejected under 35 U.S.C. 103(a) as being unpatentable over Eichelberger in
5 *view of Marcinkiewicz and Wojnarowski et al. and further in view of Tseng (US Pat. 6,395,580) is requested based on the following remarks.*

Applicants respectfully assert that the method as claimed in Claim 281 patentably distinguishes over the citations by Eichelberger (US Pat. 6,159,767).

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Eichelberger teaches that a substrate 120 or 140 can be joined with a die 102 using an adhesive material 122 or 142. ~ See Figs. 5a-5c; col. 9, lines 54-57; col. 10, lines 36-38 ~ However, Eichelberger fails to teach the substrate 120 or 140 joined with the die 102 using the adhesive material 122 or 142 can be cut, as claimed in Claim 281.

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Withdrawal of rejection under 35 U.S.C. 102(b) to Claim 281 is respectfully requested.

For at least the foregoing reasons, applicants respectfully submit independent
20 Claim 281 patently distinguishes over the prior art references, and should be allowed. For at least the same reasons, dependent Claims 287-300 patently define over the prior art as well.

Response to Claims 282 and 301-319

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As currently amended, independent Claim 282 is recited below:

282. A method for fabricating a chip package, comprising:

joining a die and a substrate using an adhesive material;

after said joining said die and said substrate, forming an insulating layer comprising a first portion over said die and a second portion over said substrate but not over said die, wherein said insulating layer comprises a porous structure; and

5 after said forming said insulating layer, cutting said substrate.

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Reconsideration of Claims 282, 301-312 and 314-319 rejected under 35 U.S.C. 103(a) as being unpatentable over Eichelberger (US Pat. 6,159,767) in view of
10 *Marcinkiewicz (US Pat. 6,025,995) and further in view of Wojnarowski et al. (US Pat. 5,576,517) and of Claim 313 rejected under 35 U.S.C. 103(a) as being unpatentable over Eichelberger in view of Marcinkiewicz and Wojnarowski et al. and further in view of Tseng (US Pat. 6,395,580) is requested based on the following remarks.*

15 Applicants respectfully assert that the method as claimed in Claim 282 patentably distinguishes over the citations by Eichelberger (US Pat. 6,159,767) in view of Marcinkiewicz (US Pat. 6,025,995) and further in view of Wojnarowski et al. (US Pat. 5,576,517).

20 Eichelberger teaches that a substrate 120 or 140 can be joined with a die 102 using an adhesive material 122 or 142. ~ See Figs. 5a-5c; col. 9, lines 54-57; col. 10, lines 36-38 ~ However, Eichelberger fails to teach the substrate 120 or 140 joined with the die 102 using the adhesive material 122 or 142 can be cut, as claimed in Claim 282. Even under the teaching of Eichelberger in view of Marcinkiewicz and Wojnarowski et al.,
25 the subject matter of cutting a substrate joined with a die using an adhesive material is believed not to be achieved, because the substrate 120 or 140 is removed from the die 102, as shown in Figs. 5c, 5d, 5f and 5g, prior to singularizing for multiple chip packages, as shown in Fig. 5h.

The Examiner considers that "It would have been obvious to a person of ordinary skill in the art at the time the invention was made to recognize that applying the low dielectric constant porous layer, as taught by Wojnarowski et al., to the proposed
5 Eichelberger and Wojnarowski method would have been beneficial because Wojnarowski et al.'s teachings help to provide a low dielectric constant insulating layer which can apply to form high frequency circuits and reduce the need for laser ablation of material situated over air bridge structures and other microwave structures and devices." ~ *See lines 4-10 in page 5, in the last Office Action mailed Jun. 13, 2007 ~*

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Applicants respectfully disagree the Examiner's opinion that the rejection is established under Eichelberger's method in view of Wojnarowski et al.'s method, because Eichelberger and Wojnarowski et al. are conceptualized based on different bases: Eichelberger's method is based on forming multiple chip packages, but Wojnarowski et
15 al.'s method is based on forming only one chip package.

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Even though Wojnarowski et al.'s method may have the advantages as recited by the Examiner, no one teaches the structure comprising a porous insulating layer comprising a first portion over a die and a second portion over a substrate but not over the
die can be used for forming multiple chip packages by a process comprising cutting the substrate joined with a die using an adhesive material. It is noted that the subject matter of cutting a substrate joined with a die using an adhesive material is not taught by Eichelberger and Wojnarowski et al.

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Withdrawal of rejection under 35 U.S.C. 103(a) to Claim 282 is respectfully requested.

For at least the foregoing reasons, applicants respectfully submit independent

Claim 282 patently distinguishes over the prior art references, and should be allowed. For at least the same reasons, dependent Claims 301-319 patently define over the prior art as well.

5 **Response to Claims 283 and 320-334**

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As currently amended, independent Claim 283 is recited below:

283. A method for fabricating a chip package, comprising:

10 joining a die and a substrate using an adhesive material;

after said joining said die and said substrate, forming a circuit layer over said die and across an edge of said die, wherein said forming said circuit layer comprises electroplating, and wherein said circuit layer comprises at least a part of a passive device;

and

15 after said forming said circuit layer, cutting said substrate.

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Reconsideration of Claims 283, 320-328, 330 and 331 rejected under 35 U.S.C. 103(a) as being unpatentable over Eichelberger (US Pat. 6,159,767) in view of

20 *Marcinkiewicz (US Pat. 6,025,995) and further in view of Wojnarowski et al. (US Pat. 5,576,517), of Claim 329 rejected under 35 U.S.C. 103(a) as being unpatentable over Eichelberger in view of Marcinkiewicz and Wojnarowski et al. and further in view of*

Tseng (US Pat. 6,395,580) and of Claims 332-334 rejected under 35 U.S.C. 103(a) as

25 *being unpatentable over Eichelberger in view of Marcinkiewicz and Wojnarowski et al. and further in view of Saia et al. (US Pat. 5,874,770) is requested based on the following*

remarks.

Applicants respectfully assert that the method as claimed in Claim 283 patentably

distinguishes over the citations by Eichelberger (US Pat. 6,159,767) in view of Marcinkiewicz (US Pat. 6,025,995) and further in view of Wojnarowski et al. (US Pat. 5,576,517).

5 Eichelberger teaches that a substrate 120 or 140 can be joined with a die 102 using an adhesive material 122 or 142. ~ *See Figs. 5a-5c; col. 9, lines 54-57; col. 10, lines 36-38* ~ However, Eichelberger fails to teach the substrate 120 or 140 joined with the die 102 using the adhesive material 122 or 142 can be cut, as claimed in Claim 283. Even under the teaching of Eichelberger in view of Marcinkiewicz and Wojnarowski et al.,
10 the subject matter of cutting a substrate joined with a die using an adhesive material is believed not to be achieved, because the substrate 120 or 140 is removed from the die 102, as shown in Figs. 5c, 5d, 5f and 5g, prior to singularizing for multiple chip packages, as shown in Fig. 5h.

15 Furthermore, Eichelberger fails to teach a circuit layer 110 over the die 102 and across an edge of the die 102 may comprises at least a part of a passive device, as claimed in Claim 283.

20 Withdrawal of rejection under 35 U.S.C. 103(a) to Claim 283 is respectfully requested.

25 For at least the foregoing reasons, applicants respectfully submit independent Claim 283 patently distinguishes over the prior art references, and should be allowed. For at least the same reasons, dependent Claims 320-334 patently define over the prior art as well.

Response to Claims 284 and 335-346

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As currently amended, independent Claim 284 is recited below:

284. A method for fabricating a chip package, comprising:

joining a die and a substrate using an adhesive material, wherein said die has a top

5 surface at a horizontal level;

after said joining said die and said substrate, forming a waveguide over said

horizontal level; and

after said forming said waveguide, cutting said substrate.

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Reconsideration of Claims 284, 335-343, 345 and 345 rejected under 35 U.S.C. 103(a) as being unpatentable over Eichelberger (US Pat. 6,159,767), Marcinkiewicz (US Pat. 6,025,995) and Wojnarowski et al. (US Pat. 5,576,517) in view of Saia et al. (US Pat. 5,874,770), and of Claim 344 rejected under 35 U.S.C. 103(a) as being unpatentable over

15 *Eichelberger, Marcinkiewicz and Wojnarowski et al. in view of Saia et al. and further in view of Tseng (US Pat. 6,395,580) is requested based on the following remarks.*

Applicants respectfully assert that the method as claimed in Claim 284 patentably distinguishes over the citations by Eichelberger (US Pat. 6,159,767), Marcinkiewicz (US

20 Pat. 6,025,995) and Wojnarowski et al. (US Pat. 5,576,517) in view of Saia et al. (US Pat. 5,874,770).

Eichelberger teaches that a substrate 120 or 140 can be joined with a die 102 using an adhesive material 122 or 142. ~ See Figs. 5a-5c; col. 9, lines 54-57; col. 10, lines

25 36-38 ~ However, Eichelberger fails to teach the substrate 120 or 140 joined with the die 102 using the adhesive material 122 or 142 can be cut, as claimed in Claim 284. Even under the teaching of Eichelberger, Marcinkiewicz and Wojnarowski et al. in view of Saia et al., the subject matter of cutting a substrate joined with a die using an adhesive

material is believed not to be achieved, because the substrate 120 or 140 is removed from the die 102, as shown in Figs. 5c, 5d, 5f and 5g, prior to singularizing for multiple chip packages, as shown in Fig. 5h.

5 The Examiner considers that “It would have been obvious to modify the proposed method Eichelberger, Marcinkiewicz and Wojnarowski accordingly for providing a component with a specific intended function, and such modification is held to be within the ordinary designing ability expected of a person skilled in the art since the component having passive device, which comprises a capacitor, a resistor, a inductor, etc., are
10 commonly disclosed in the art.” ~ *See line 18 of page 6 through line 2 of page 7, in the last Office Action mailed Jun. 13, 2007* ~

Applicants respectfully traverse the Examiner’s opinion because there is no evidence that a waveguide could be formed over a horizontal level defined by a top
15 surface of a die joined with a substrate using an adhesive material. A waveguide has a function of improving a transmissive quality for a signal, which is not recited by Marcinkiewicz, Wojnarowski et al. or Saia et al. It is believed that adding the function to Eichelberger’s device is unobvious in view of Marcinkiewicz, Wojnarowski et al. or Saia et al. If the Examiner considers that the subject matter is obvious, showing the
20 subject matter that “a waveguide is formed over a horizontal level defined by a top surface of a die joined with a substrate using an adhesive material”, as claimed in Claim 284 is respectfully requested.

Withdrawal of rejection under 35 U.S.C. 103(a) to Claim 284 is respectfully
25 requested.

For at least the foregoing reasons, applicants respectfully submit independent Claim 284 patently distinguishes over the prior art references, and should be allowed.

For at least the same reasons, dependent Claims 335-346 patently define over the prior art as well.

Response to Claims 285 and 347-358

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As currently amended, independent Claim 285 is recited below:

285. A method for fabricating a chip package, comprising:

10 joining a die and a substrate using an adhesive material, wherein said die has a top surface at a horizontal level;

after said joining said die and said substrate, forming a micro electronic mechanical element over said horizontal level; and

after said forming said micro electronic mechanical element, cutting said substrate.

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Reconsideration of Claims 285, 347-355, 357 and 358 rejected under 35 U.S.C. 103(a) as being unpatentable over Eichelberger (US Pat. 6,159,767), Marcinkiewicz (US Pat. 6,025,995) and Wojnarowski et al. (US Pat. 5,576,517) in view of Saia et al. (US Pat. 5,874,770), and of Claim 356 rejected under 35 U.S.C. 103(a) as being unpatentable over
20 *Eichelberger, Marcinkiewicz and Wojnarowski et al. in view of Saia et al. and further in view of Tseng (US Pat. 6,395,580) is requested based on the following remarks.*

Applicants respectfully assert that the method as claimed in Claim 285 patentably distinguishes over the citations by Eichelberger (US Pat. 6,159,767), Marcinkiewicz (US
25 Pat. 6,025,995) and Wojnarowski et al. (US Pat. 5,576,517) in view of Saia et al. (US Pat. 5,874,770).

Eichelberger teaches that a substrate 120 or 140 can be joined with a die 102 using

an adhesive material 122 or 142. ~ See Figs. 5a-5c; col. 9, lines 54-57; col. 10, lines 36-38 ~ However, Eichelberger fails to teach the substrate 120 or 140 joined with the die 102 using the adhesive material 122 or 142 can be cut, as claimed in Claim 285. Even under the teaching of Eichelberger, Marcinkiewicz and Wojnarowski et al. in view of Saia et al., the subject matter of cutting a substrate joined with a die using an adhesive material is believed not to be achieved, because the substrate 120 or 140 is removed from the die 102, as shown in Figs. 5c, 5d, 5f and 5g, prior to singularizing for multiple chip packages, as shown in Fig. 5h.

10 The Examiner considers that “It would have been obvious to modify the proposed method Eichelberger, Marcinkiewicz and Wojnarowski accordingly for providing a component with a specific intended function, and such modification is held to be within the ordinary designing ability expected of a person skilled in the art since the component having passive device, which comprises a capacitor, a resistor, a inductor, etc., are
15 commonly disclosed in the art.” ~ See line 18 of page 6 through line 2 of page 7, in the last Office Action mailed Jun. 13, 2007 ~

Applicants respectfully traverse the Examiner’s opinion because there is no evidence that a micro electronic mechanical element could be formed over a horizontal level defined by a top surface of a die joined with a substrate using an adhesive material. A micro electronic mechanical element has a function of mechanical movement, which is not recited by Marcinkiewicz, Wojnarowski et al. or Saia et al. It is believed that adding the function to Eichelberger’s device is unobvious in view of Marcinkiewicz, Wojnarowski et al. or Saia et al. If the Examiner considers that the subject matter is obvious, showing the subject matter that “a micro electronic mechanical element is
25 formed over a horizontal level defined by a top surface of a die joined with a substrate using an adhesive material”, as claimed in Claim 285 is respectfully requested.

Withdrawal of rejection under 35 U.S.C. 103(a) to Claim 285 is respectfully requested.

For at least the foregoing reasons, applicants respectfully submit independent
5 Claim 285 patently distinguishes over the prior art references, and should be allowed.
For at least the same reasons, dependent Claims 347-358 patently define over the prior art
as well.

Response to Claims 286 and 359-370

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As currently amended, independent Claim 286 is recited below:

286. A method for fabricating a chip package, comprising:

15 joining a die and a substrate using an adhesive material, wherein said die has a top
surface at a horizontal level;

after said joining said die and said substrate, forming a filter over said horizontal
level; and

after said forming said filter, cutting said substrate.

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*Reconsideration of Claims 286, 359-367, 369 and 370 rejected under 35 U.S.C.
103(a) as being unpatentable over Eichelberger (US Pat. 6,159,767), Marcinkiewicz (US
Pat. 6,025,995) and Wojnarowski et al. (US Pat. 5,576,517) in view of Saia et al. (US Pat.
5,874,770), and of Claim 368 rejected under 35 U.S.C. 103(a) as being unpatentable over
25 Eichelberger, Marcinkiewicz and Wojnarowski et al. in view of Saia et al. and further in
view of Tseng (US Pat. 6,395,580) is requested based on the following remarks.*

Applicants respectfully assert that the method as claimed in Claim 286 patentably

distinguishes over the citations by Eichelberger (US Pat. 6,159,767), Marcinkiewicz (US Pat. 6,025,995) and Wojnarowski et al. (US Pat. 5,576,517) in view of Saia et al. (US Pat. 5,874,770).

5 Eichelberger teaches that a substrate 120 or 140 can be joined with a die 102 using an adhesive material 122 or 142. ~ *See Figs. 5a-5c; col. 9, lines 54-57; col. 10, lines 36-38* ~ However, Eichelberger fails to teach the substrate 120 or 140 joined with the die 102 using the adhesive material 122 or 142 can be cut, as claimed in Claim 285. Even under the teaching of Eichelberger, Marcinkiewicz and Wojnarowski et al. in view
10 of Saia et al., the subject matter of cutting a substrate joined with a die using an adhesive material is believed not to be achieved, because the substrate 120 or 140 is removed from the die 102, as shown in Figs. 5c, 5d, 5f and 5g, prior to singularizing for multiple chip packages, as shown in Fig. 5h.

15 The Examiner considers that “It would have been obvious to modify the proposed method Eichelberger, Marcinkiewicz and Wojnarowski accordingly for providing a component with a specific intended function, and such modification is held to be within the ordinary designing ability expected of a person skilled in the art since the component having passive device, which comprises a capacitor, a resistor, a inductor, etc., are
20 commonly disclosed in the art.” ~ *See line 18 of page 6 through line 2 of page 7, in the last Office Action mailed Jun. 13, 2007* ~

Applicants respectfully traverse the Examiner’s opinion because there is no evidence that a filter could be formed over a horizontal level defined by a top surface of a
25 die joined with a substrate using an adhesive material. A filter has a function of eliminating noise, which is not recited by Marcinkiewicz, Wojnarowski et al. or Saia et al. It is believed that adding the function to Eichelberger’s device is unobvious in view of Marcinkiewicz, Wojnarowski et al. or Saia et al. If the Examiner considers that the

subject matter is obvious, showing the subject matter that “a filter is formed over a horizontal level defined by a top surface of a die joined with a substrate using an adhesive material”, as claimed in Claim 286 is respectfully requested.

5 Withdrawal of rejection under 35 U.S.C. 103(a) to Claim 286 is respectfully requested.

For at least the foregoing reasons, applicants respectfully submit independent Claim 286 patently distinguishes over the prior art references, and should be allowed.

10 For at least the same reasons, dependent Claims 359-370 patently define over the prior art as well.

CONCLUSION

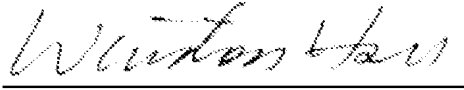
15 Some or all of the pending claims are believed to be in condition for Allowance, and that is so requested. Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

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Appl. No. 10/055,499
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Reply to Office action of June 13, 2007

Sincerely yours,



Date: 09.13.2007

Winston Hsu, Patent Agent No. 41,526

5 P.O. BOX 506, Merrifield, VA 22116, U.S.A.

Voice Mail: 302-729-1562

Facsimile: 806-498-6673

e-mail : winstonhsu@naipo.com

- 10 Note: Please leave a message in my voice mail if you need to talk to me. (The time in D.C. is 12 hours behind the Taiwan time, i.e. 9 AM in D.C. = 9 PM in Taiwan.)